

IN THE CLAIMS:

Please ADD new claims 16-20, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1. (Previously Amended) A charged-particle beam drawing data creation method of supplying bit information created from design pattern data in a scanning direction of a charged-particle beam, ON/OFF-controlling the charged-particle beam to irradiate a sample surface, and exposing a two-dimensional pattern by scanning the charged-particle beam, the method comprising the steps of:

extracting a cell pattern as one unit of a periodic structure from design pattern data having a periodic structure, and registering the cell pattern;

creating arrangement data to be rearranged in a basic drawing region defined by a charged-particle beam exposure apparatus using the cell pattern, and registering the arrangement data; and

cutting out data from the cell pattern in accordance with information of the arrangement data, and creating data of the basic drawing region.

2. (Original) The method according to claim 1, wherein the basic drawing region includes all or some of regions of a plurality of cell patterns.

3. (Original) The method according to claim 1, wherein the cell pattern is not smaller in size than the basic drawing region.

4. (Original) The method according to claim 1, wherein the cell pattern is smaller in size than the basic drawing region.

5. (Original) The method according to claim 1, wherein the basic drawing region includes at least some of cell patterns not smaller in size than the basic drawing region and some of cell patterns smaller in size than the basic drawing region.

6. (Previously Amended) The method according to claim 1, wherein the cell pattern is not less than twice the size of the basic drawing region.

7. (Original) The method according to claim 1, wherein the cell pattern is formed from bitmap data.

8. (Previously Amended) A charged-particle beam exposure apparatus for supplying bit information created from design pattern data in a scanning direction of a charged-particle beam, ON/OFF-controlling the charged-particle beam to irradiate a sample surface, and exposing a two-dimensional pattern by scanning the charged-particle beam, the apparatus comprising:

means for extracting a cell pattern as one unit of a periodic structure from design pattern data having a periodic structure, and registering the cell pattern;

means for creating arrangement data to be rearranged in a basic drawing region defined by the charged-particle beam exposure apparatus using the cell pattern, and registering the arrangement data; and

means for cutting out data from the cell pattern in accordance with information of the arrangement data, and creating data of the basic drawing region.

9. (Original) The apparatus according to claim 8, wherein the basic drawing region includes all or some of regions of a plurality of cell patterns.

10. (Original) The apparatus according to claim 8, wherein the cell pattern is not smaller in size than the basic drawing regions.

11. (Original) The apparatus according to claim 8, wherein the cell pattern is smaller in size than the basic drawing region.

12. (Original) The apparatus according to claim 8, wherein the basic drawing region includes at least some of cell patterns not smaller in size than the basic drawing region and some of cell patterns smaller in size than the basic drawing region.

13. (Previously Amended) The apparatus according to claim 8, wherein the cell pattern is not less than twice the size of the basic drawing region.

14. (Original) The apparatus according to claim 8, wherein the cell pattern is formed from bitmap data.

15. (Original) The apparatus according to claim 8, further comprising:

a plurality of charged-particle beams and a plurality of beam-ON/OFF means arranged in m rows \times n columns,

wherein in a drawing method of drawing patterns in parallel with each other in respective basic drawing regions by the charged-particle beams,

bitmap drawing data are supplied in parallel with each other to said respective beam-ON/OFF means in the scanning direction of the charged-particle beam, and

the plurality of charged-particle beams are controlled to irradiate a sample surface, thereby drawing a two-dimensional pattern.

16. (New) A device manufacturing method of irradiating a charged-particle beam to a surface based on data in a basic drawing region defined by a charged-particle beam exposure apparatus, and forming a pattern on the surface, said method comprising the steps of:

extracting a cell pattern as one unit of a periodic structure from design pattern data, which should be formed on the surface;

creating arrangement data used in a case of converting from data of the cell pattern into the data of the basic drawing region; and

converting from the data of the cell pattern into the data of the basic drawing region, based on the created arrangement data.

17. (New) The method according to claim 16, wherein the pattern is sequentially formed on the surface using the irradiated charged-particle beam for each of a plurality of the basic drawing regions, and the step of extracting the cell pattern and the step of creating the arrangement data complete each processing before starting of the processing of the step of forming the pattern on the surface in the first basic drawing region.

18. (New) A charged-particle beam exposure apparatus for forming a pattern on a surface, said apparatus comprising:

a main body for irradiating a charged-particle beam to the surface based on data in a basic drawing region defined by the charged-particle beam exposure apparatus; and

a controller for converting from data of a cell pattern as one unit of a periodic structure of design pattern data, which should be formed on the surface, into the data of the basic drawing region, based on a conversion parameter.

19. (New) The apparatus according to claim 18, wherein said controller cuts out some of the data of the cell pattern from the data of the whole cell pattern, based on the conversion parameter, and the conversion parameter sets up a position for cutting out and a size for cutting out, in order to be processed by the controller.

20. (New) The apparatus according to claim 18, wherein the pattern is formed on the surface using a plurality of the charged-particle beams, and the main body performs irradiating of each of the plurality of charged-particle beams, based on each data in a plurality of the basic drawing regions.